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The Journal of General Physiology
Vol 128 • No 1 • July 2006

General Physiology is the study of biological mechanisms through analytical investigations, which decipher the molecular and cellular mechanisms underlying biological function at all levels of organization.

The mission of the *Journal of General Physiology* is to publish articles that elucidate important biological, chemical, or physical mechanisms of broad physiological significance.

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Cover picture: Logo for the 2006 SGP Symposium "Chemotaxis, Invasion, and Phagocytosis: From Bacteria to Humans." Bacteria invade epithelial cells, where they may be killed or survive within membrane-bound compartments after escaping to the cytosol. Bacteria can also traverse the epithelial barrier, attracting phagocytic cells of the innate immune system. Chemotaxis, invasion, and phagocytosis play a central role in the pathogenesis and clearance of infection (logo provided by Paul Paroutis).

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The Journal of General Physiology
Vol 128 • No 2 • August 2006

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Cover picture: Reduction of all-trans retinal to all-trans retinol in salamander rod and cone photoreceptors following light exposure. The top row shows (from left to right): a red rod (RR), a green rod (GR), a blue-sensitive cone (BC), and a red-sensitive cone (RC). The pseudocolor images below each cell show the spatial distribution of retinol fluorescence in outer segments before (top) and at different times after photoactivation of >90% of their visual pigment. Retinol production occurs faster in cones than in rods (see article by Ala-Laurila et al., 153–169).

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The Journal of General Physiology
Vol 128 • No 3 • September 2006

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Cover picture: Bestrophins are calcium-regulated chloride channels. *Drosophila* S2 cells express four bestrophins and a native calcium-activated chloride current that runs up slowly after patch break (top). The endogenous calcium-activated chloride current is abolished when bestrophin expression is knocked down by interfering RNAs (bottom) (see article by Chien et al., 247–259).

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The Journal of General Physiology
Vol 128 • No 4 • October 2006

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Cover picture: (Top) Catecholamine secretion (monitored by amperometry) in response to hypoxia of wild-type (HO-2 +/+) and hemeoxygenase 2–deficient (HO-2 −/−) carotid body glomus cells. (Bottom) Immunoreactivity against hemeoxygenase 1 (HO-1, left) and tyrosine hydroxylase (TH, right) in the carotid body and adjacent external (EC) and internal (IC) carotid arteries (see article by Ortega-Sáenz et al., 405–411).

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The Journal of General Physiology
Vol 128 • No 5 • November 2006

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Cover picture: (Top) Cartoon representation of the mechanism of TRPV1 potentiation by NGF. NGF binding to trkA leads to PI3K activation. PI3K converts PIP2 to PIP3, which leads to a net increase in TRPV1 channels in the plasma membrane. Stein et al. provide support for this PI3K model of NGF potentiation (bottom right) and argue against an alternative PLC model (bottom left) (see article by Stein et al., 509–522).

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The Journal of General Physiology
Vol 128 • No 6 • December 2006

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755 Correction

Cover picture: (Top) Neuronal activity induces regenerative calcium waves and local calcium release events in a perivascular astrocytic endfoot and processes abutting an arteriole in a cortical brain slice. (Bottom) Calcium release from spatially localized regions summates into a global calcium signal in an astrocytic endfoot (see article by Straub et al., 659–669).